Notebook Series -- Notebooks by Experimenters Other Than Edison
Kinetophone and Kinetoscope Experiments -- A. M. Kennedy Books
Notebook, N-14-08-05

This notebook was used by Absalom M. Kennedy in August 1914 as a record of experimental work on the kinetophone. The early entries relate to experiments to determine how variations in speed and amplification affected the quality of the recording. Also included are notes on setting up scenery and making test exposures in order to determine the best focus and lens. In addition, there are tests of various screens and screen mounts, as well as new starting devices for the shaving machine motors. Several entries specifically indicate that the work was being done for Edison, while others mention experiments on stereoscopic photography performed for Charles Edison. Some of the entries are related to the experiments documented in Notebooks by Edison and Other Experimenters—Recorder and Recording Experiments—A. M. Kennedy Books. The notes indicate that L. E. Hammond, Daniel Higham, S. G. Langley, Charles W. Luhr, J. O. Lyman, George J. Werner, and employees named Buchwald and Essner were involved in similar work on kinetophone recording. The front cover is labeled "Daily Record of Kinetophone Experiments from Aug. 5-1914 to." The pages are unnumbered. Approximately 35 pages have been used.

Aug. 5-1914.

Experiment with recorders to test difference in quality at different speeds of recording and amplifying-

Used Baby Lee singing "Come Back to Erin" with AMR at piano.

Recorded at 60-80-100-120-140 & 160 R.P.M.
Amplified these double at 80 R.P.M. each time.
Then amplified them double at 40-53-66-80-93-117 R.P.M.
Results as follows:

60-40 - Voice metallic & raspy. Piano good.
60-80 - Voice very metallic & raspy " "
80-53 - Voice metallic - better than 60 " "
80-80 - " " louder than 80-53 " "
100-67 " trifle " better than 100-80 " "
100-80 " little " " " 80-53 " "
120-80 " good " little feeble.
140-80 " good. Louder than 120 - Piano good
140-93 " fair - loud " "
160-80 " good. " "
160-117 " fair. Louder than 160-80 " "

Put up set for Tales of Hoffman.
and made short takes.

Made portrait, full stage and
outdoor exposures with 75mm
Dallmeyer lens. This lens lacks a
little in depth at f5.6 as compared
with "Helar" Lens
at f 6.3 does not loose enough to
be objectionable unless with
very deep stage and prolonged
acting at back. Outside test
satisfactory. Suggest getting
a 50mm lens of same make

Aug. 6, 1914.

Buchwald arranged double cameras for Chas Edison's stereoscopic photography take.

Raw takes including Elizabeth Spencer and Bobby Lee in "Come Back to Erin". Photography on these is excellent - apparently the best we have done yet - lighting soft and even. Every line of face - each hair of head shows distinct & clear. White short front on Bobby Lee's evening dress did not even give any halation.

George Werner off on vacation

Tests of 75 mm. Dallmeyer lens on comparitor showed up same as previous reports. Good sharp pictures little less depth of focus than Voightlander.

Lyman made positives of recent negatives.

Hammond tested out new starting device for a/c shaving machine motors. Made 1200 starts without a hitch. Will redesign hangers deep to keep from catching springs when revolve backwards.

Tested out scrim screens in front of regular aluminum screen. Cuts out objectionable reflection but cuts down light and gives waves silk effect. Will mount differently so as to vary distances between screens.

Aug. 7, 1914

Set up & made test of two camera method of stereoscopic photography for Chas. Edison. 60 ft of negative used for each picture.

This involved adjusting the floor lines of the cameras exactly and aligning the cameras so that the principal object exactly corresponded in each.

Tested out means of coating the wooden strips of developing racks with celluloid lacquer so that the developing solution would not penetrate the wood.

Had foreign studio outfits brought over and locked in room.

Aug. 8-1914.

Studio rather disorganized due to men leaving and half holiday.

Checked out material and work left with men and planned with some of them about work.

Aug. 10/14.

Took down apparatus of stereoscopic photography test and put up cameras for a take.

Saw negatives of stereo experiment. One little denser than the other. Laid out printing scheme.

Berner worked on double amplifying test with Bowlby scenes. "Heart Bowed Down". N.G. Names & thin spots. Amplified old 1st duks - showed up good.

Another Record same "Come Back to Erin". No names. One Jump Out but weak - not up to usual strength. Unable to explain.

Saw Fuhr about lease for Bushwald.

Aug 11 - 1914

Made tests and a take of Miss Mary Jordan, 533-W 113th St.

Tests showed bad interference between piano and voice. This was in part eliminated by changing the accompanyment to an octave higher for the right hand than was written. Record as made was not as good as has been made.

Werner found that the sapphire ball of his amplifying machine was loose. Also that the bearings were too tight.

Afterwards made excellent records of Bach. Lett. singing

Points brought out here were
1. Inspection of all machines including recording heads, amplifiers, lever arms etc before making records.

(2) Need of carefully selecting the number and examination of the accompanyment. If this is in middle register of the Piano or contains lot of notes played together, especially with octaves, the accompanyment should be changed to an arpeggio one and the right hand middle notes raised an octave higher.

McChesney telephoned over to find what a record would cost for Klaw & Erlanger for a mob scene. Also for three records taken at 10 ft or more to be sent to the Bell Telephone Company.

Lyman found that shutter on Camera does not cover aperture with narrow angle lens. Essner made a new and wider one.

8/12/14.

Made tests with George Nerney to find trouble with recording. Got some excellent loud records with Bobb Lett.

Made up estimate for McCheney of cost of making record for Klaw & Erlanger.

Ran Chas Edison stereoscopic picture. Very jumpy from 3 causes:

1. Cameras 10" apart.
2. Inaccuracy of selling cameras
3. Inaccuracy of printing positive.

Discussed with Chas Edison another method of taking.

8/13/14.

Herman made up new recorders, soft aluminum .006" × 15/16" diameter, cemented to ring of mica from .001" to .005" – 3/4" hole & 1 5/16" diameter.

Characteristics of these were that they are not as loud as regular mica recorders. They deaden the ring of the piano and prevent interference making piano accompanyment possible.

Make excellent piano records as each note can be distinctly heard.

Made tests of lenses. Found necessary to have stops in the tubes to prevent extraneous light & consequent fog. Gave tubes to Essner to do this.

Made test of wide open & stopped down lenses to show T.A.E. the difference in depth of focus.

So far have not been able to get any definition out of the 16" telephoto lens.

Set up screen for Committee. Ran K-11D & K-14. Photography on the first is good. Recording shows some

interference but does not appear nearly so bad with picture as without.

Photography on K-14 (Miss Mary Jordan) shows badly distributed lighting, the background is too bright - the foreground and particularly the lower portion not light enough.

Method of securing uniform lighting all over stage

8/14/13.

Werner, Leslie & Tesla put new reproducers #s 5, 20, 30, 40, 60 & 70

#20-30-60 were little sharp and weak

#5-40-70 were good and full, natural and excellent and did not show any interference with the piano.

Made trial record with these and will have new record made for Mr. Edison to hear.

Heard #'s 208B-212B-214B & 218C which were Austrian records reported as much too weak for commercial purposes.

Werner had reamplified these and they now appear good and loud - excellent as commercial records.

Found that #238a Record & #308 Tilson was sent here. This looks like a mismatched pair had been sent to Europe.

Reamplified Mr. Murphy's Harrison

and made it louder than
originally. Not particularly good.
however, probably not commercial

8/15/14.

Further tests of aluminum center recorders to diminish piano interference.

Elimination tests to find which recorder is best of the following:

#5 (.038" needle) Standard

#20 (.024" needle) Piano not as loud
Voice little metallic

#30 (.024" needle) Piano louder than #20
Voice not so loud but more natural

#40 (.024" needle) Piano good & natural
Voice excellent.

#60 (.024 needle) Piano good
Voice more metallic than #40

#70 (.024 needle) Piano good & full
Voice full. Good

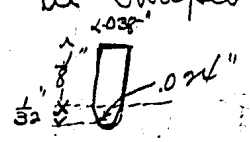
Further tests showed #40 to be the best & #70 next.

8/7/14.

Werner made 2 new tests of Cook Letton new recorders to determine piano interference with new recorders.
Arrist on piano played hand free in middle register.
Apparently #140 recorder (aluminum center) had slightly less interference than #10 (Standard). It is evident however than other singers (preferably women) and accompanyist must be obtained as it was practically impossible to get interference even when tried.

Werner set up another arm with new needle & sapphire.

It is evident that for double amplifying with .034" needle the ball in amplifier lever arm should be shaped



also that the ~~part~~ recorders both for recording machine and for amplifying should not be less than 5/32 to 3/16" long.

8/18/14.

Perry set up amplifier with new long needle. This played very strong and gave considerable trouble took all morning to do.

Made records of a baritone singer.

Mr. Higham came & talked. Showed him new recording & playing amplifying. He said the latter was good - better than he expected.

Amk. tried several times to set up camera & focus but could not on account of other interference.

8/19/14

Werner made further trials with aluminum centered diaphragms to accomplish

① Naturalness of tone & quality

② Diminish interference.

Did not get a reader better than #40 which showed up best before.

Made record of Miss Bobb Pitt & piano with #40, #10 (old standard) #40 showed better quality & diminished the piano.

#40 was crisp but the piano rang in too much and the voice was a little sharp. On account of soft playing of piano, neither of them showed any interference.

Spent morning trying to get #5 reproducing machine up to one being used at Studio. Did not get the same out. Put Hammond on job. He did not succeed.

At night worked on printing positives from negatives made. Can do it but for reliable work must make up own developers etc. Found that positives must be correctly exposed - about 8 sec. at 6 ft from 60 watt mazda lamp. That the development must be carried farther for positives than for negatives to secure density.

8/20/14.

Werner made new tools and recorded for non-interfering reader. #40 showed up best and proved that these aluminum centered diaphragms are non interfering as compared with regular mica diaphragms.

Made takes with Dallmeyer f1.9 lens.

(1) with microscope focusing. Point of focus showed a little behind on scale i.e. - for 5 yds showed about 5/8 yds. Pictures taken with this showed focus slightly behind principal object.

(2) Taken at f 4 - 5.6 x 8 showed that f5.6 was nearest correct exposure.

(3) Retake with pointer just forward of 5 yds gave beautifully clear focus pictures.

(4) Tried same lens wide open - & Ariston x 2 side lights. (1) Bulged eye focus. Showed on background. (2) Setting indicator little ahead. Shows focus on foreground.

(3) Indication on 3rd mark. Shows better than either of others but not perfectly sharp.

8/21/14.

Perner worked on non-interference readers. Got wave on lens which proved in reading machine.

Amikmade full stage take with Dallmeyer 75mm lens at f4-5.6-8 Later development proved all underexposed.

Made take of chairs with Helios 4.5-5.6-6.3. Later development proved all underexposed.

This because old film (from Studio Short Ends) were used. Showed use fresh film

8/28/12.

Werner made passes with #10 & #20 recorders to show difference in interference

AMK made out of window takes with
① Velar lens @ f 25-18-12.
② Dallmeyer " @ f 16-11-8.

Developed all films in afternoon & showed that of ①
f 12 was nearest correct exposure
and of ② the correct exposure
say Wolman f 8 & f 11, showing that
f 9.6 would be about right.

These exposure values are wrong because old film was used.

8/24/11.

Werner made up new focus ball recorder. Made several trials. results good. Seems to be louder than floating recorder and more solid. Has a little more surface.

Amk-made photographs:

1

Dallmeyer Lens. Interior Stage all lights burning. Lens at 10 yds.

① f4 - overexposed - focus trifle back
② f5.6 - about correct exp. " " "
③ f8 - trifle underexp. " " "

Correct exposure would have been f6.3.

2

Dallmeyer Lens. Out of window. Bright Sun. 11:30 a.m. Lens at ∞

①. f5.6. overexposed badly
②. f8. " "
③. f11. " "
④. f16. overexposed.

3

Dallmeyer 75 mm lens. Culvert on road from Eagle Rock to Montclair. 4:45 P.M. ∞
In shadow of trees & hill.
① f 5.6 under exposed - focus good
② f 8. seriously " " " "
③ f 11. " " " " "
④ f 16. " " " " "

4

Dallmeyer 75 mm. Sky & distant trees. 5 P.M. ∞
① f 8 over exposed - focus good.
② f 11 " " " "
③ f 16 correct " " "
④ f 5.6 slightly under " " "

5

Dallmeyer 75 mm. Open - Dim under cloud - green shrubbery background. 7 yd.
① f 5.6 good exposure - good focus.
② f 4. trifle overexposed - " "

8/25/14.

Werner worked on follow back recorder. Records on same were sharp as compared with floating weight. Had some blinds and bad spots also.

A.W.K. made the following takes:

① Helios lens out window to check over exposure of Dallmeyer lens of day previous.

① f12 - Bit Sun - 10:45 a.m. Distant rat ∞
② f18 " " " " " " "
③ f25 " " " " " " "

① Showed excellent exposure
② " good "
③ " under "

Comparing these with session V of yesterday, pictures taken at same time of day and under same conditions with Dallmeyer lens, proves that if the exposure of the Helios lens is correct, the ratings on

the Dallmeyer lens are much too low or that this lens is about 3 or 4 times as fast as the Helios.

With 3 Engravers arcs burning. Made exposure with Wynne meter. Showed 8 seconds, which for f90 plate gives f5½. Exposed at f4 with excellent results in following:

① Dallmeyer Lens to check above -
② Test Cooke 6" lens. Focus by eye on ground glass. Distance 5 yds. f4.5 used. Focus not sharp Exposure good.
③ Test Express 6" lens. Focus by eye on ground glass. Distance 5 yds. f4.5 used. Focus, not perfect but best of the lot focussed this way. Exposure good
④ Test Helios 6" lens. Focus by eye on ground glass. Distance 5 yds. f4.5 used. Focus not sharp. Exposure good.
⑤ Test B & L Zeiss Tessar lens. Focus by eye on ground glass. Distance 5 yds. f4.5 used. Focus not perfect, better than 2 or 4. Exposure good.
⑥ Test Cooke 16" Telephoto. Focussed by eye on ground glass.

Focus shows not good. Exposure OK.

8/26/14.

Werner worked on follow ball recorder. First results poor. Later ones better. Got him some .004" x .006" sheet aluminum and some follow ball heads.

AMK experimented with focusing on ground glass and looking at this image with microscope. Also working out the telephoto lens.

1

Telephoto lens at about 40 ft. Focused on ground glass with microscope. Result poor. Not perfectly sharp. Exposure excellent.

2

Telephoto lens out of window at junction on Eagle Rock about 1½ miles. Focused on ground glass with microscope. Result fair to good. Exposure excellent.

3.

6" - Express Lens. Focused on ground glass with microscope. Focus fair. Apparently on foreground. Exposure O.K.

4.

6" - Express Lens. Focused by aerial image method. Focus good. Exposure O.K.

8/27/14.

Werner worked on follow back method of recording. Results good.

Am & made tests of methods of focusing and of use of exposure meter. Test strips up excellent. All exposures good. Have not yet found reliable method of focusing other than graduated lens.

Set up for Committee meeting.

8/28/11.

Perner made up new backs
had recorders. Some good
Some indifferent.

Ans set up #6 camera &
exposed with regular lighting
① f4.5 - good to trifle over exposed.

② f6.3 - good exposure.

③ f9 - Underexposed.

Focus seems to be good.

Also Portrait picture of Bobb
lit with 3" Dallmeyer lens.
① - 14 ft. left burning head f5.
② - 11 " " " f6.3
Sent films to Rehood to develop.

8/29/14.

all crew off.

AMK made tests of new cheap film.

3 takes at f 4, 5.6 - 8 showed 8 the best for this class of work once sharp, contrast & not half tones are what is desired

~~Soft~~ taken for Penhood to Dunlop & show Chas Edison.

Experiments on electrolysis of fixing solution,